AMENDMENTS TO THE CLAIMS

1. (Currently Amended) An S-type wave-guide adjustable optical attenuator, comprising:

a cladding layer, having a first refraction index and forming a slot therein; and

a core layer, embedded in the slot of the cladding layer such that only one surface of the core layer is exposed, wherein the core layer has a second refraction index sensitive to temperature change, wherein the attenuation of an optical signal transmitted through the core layer varies according to the temperature of the core layer;

wherein the cladding layer and the core layer forms a S-type double bend wave-guide element comprising two curved wave-guide portions connected with each other, a linear inlet wave-guide portion connected to one of the curved wave-guide portion and an outlet wave-guide portion connected to the other of the curved wave-guide portion.

2. (Original) The optical attenuator of claim 1, wherein the core layer is made of a polymer material.

3. (Original) The optical attenuator of claim 1, wherein the cladding layer is made of a glass material.

4. (Original) The optical attenuator of claim 1, wherein an upper surface of the core layer further includes an electrode layer thereon.

5. (Original) The optical attenuator of claim 4, further comprising a buffer layer between the electrode layer and the core layer.

6. (Original) The optical attenuator of claim 5, wherein the buffer layer is made of silicon dioxide.

7. (Original) The optical attenuator of claim 1, further comprising a temperature controller operable to vary the temperature of the core layer.

8. (Original) The optical attenuator of claim 7, wherein the temperature controller further comprises a heater operable to vary the temperature of the core layer.

9. (Original) The optical attenuator of claim 7, wherein the temperature controller further comprises a cooling device operable to vary the temperature of the core layer.

10. (Currently Amended) An optical attenuating method using an S-type wave-guide, comprising:

transmitting an optical signal through an optical attenuator, wherein the optical attenuator includes a cladding layer and a core layer made of a polymer material and embedded in a slot of the cladding layer such that only one surface of the core layer is exposed, the core layer having a temperature-sensitive refraction index; wherein the cladding layer and the core layer forms a S-type double bend wave-guide element comprising two curved wave-guide portions connected

with each other, a linear inlet wave-guide portion connected to one of the curved wave-guide portion and an outlet wave-guide portion connected to the other of the curved wave-guide portion; and

controlling the temperature of the core layer to attenuate the intensity of the optical signal.

11. (Currently Amended) The optical attenuator of claim 1, wherein the S-type double bend wave-guide structure is formed by two continuously curved portions.

12. (Currently Amended) The optical attenuator of claim 1, wherein the S-type double bend wave-guide structure is formed according to sine function.

13. (Currently Amended) The optical attenuator of claim 1, wherein the S-type double bend wave-guide structure is formed according to cosine function.

14. (New) The optical attenuator of claim 1, wherein a profile of the S-type double bend wave-guide structure is defined by:

$$y(x)=(W/L)x-(W/2\pi)\sin(2\pi x/L)$$